Check List the journal of biodiversity data

LISTS OF SPECIES

Check List 12(6): 2019, 24 December 2016 doi: https://doi.org/10.15560/12.6.2019
ISSN 1809-127X © 2016 Check List and Authors

Floristic checklist from an Atlantic Forest vegetation mosaic in Reserva Particular do Patrimônio Natural Fazenda Tabatinga, Pernambuco, Brazil

Débora Maria Cavalcanti Ferreira[1,3], **Bruno S. Amorim**[1], **Jefferson R. Maciel**[1,2] & **Marccus Alves**[1]

[1] Programa de Pós-Graduação em Biologia Vegetal (PPGBV), Departamento de Botânica, Universidade Federal de Pernambuco (UFPE), Rua Professor Moraes Rego, s/n, Cidade Universitária, CEP 50670-901, Recife, Pernambuco, PE, Brazil
[2] Jardim Botânico do Recife, Km 7,5 da BR-232, s/n, Curado, CEP 50000-230, Recife, Pernambuco, PE, Brazil
[3] Corresponding author. E-mail: deboracavalcantif@hotmail.com

Abstract: A floristic inventory was made in the Reserva Particular do Patrimônio Natural Fazenda Tabatinga to show the importance of small forest fragments for conservation of the biodiversity of the Atlantic Forest. The reserve protects a vegetation mosaic typical of coastal habitats in an area of ca. 20 ha, located in the northern part of the Brazilian Atlantic Forest. Samples of vascular plants were collected between January 2010 and November 2011, and altogether 329 species were recorded. These are classified in 230 genera and 79 families of angiosperms and two genera and two families of ferns. Among the species found, 28 are endemic to the Atlantic Forest, while others are rare and restricted to the Pernambuco Endemism Center. In addition, three threatened species were detected. The presence of endemic, rare, and threatened species, along with floristic patterns typical of coastal areas of Brazil, reinforce the importance of the area for the conservation.

Key words: conservation; endemism; floristic inventory; Mangrove; Restinga; rare species

INTRODUCTION

The Atlantic Forest holds up to about 8% of the world's biodiversity (Silva & Casteleti 2005). Within the Brazilian area of Atlantic Forest, 15,001 angiosperm species are recorded and almost 50% of them are considered endemic to this biome (Lista de Espécies da Flora do Brasil 2015). Extremely heterogeneous in composition (Tabarelli et al. 2005), the Atlantic Forest is considered a mosaic of vegetation types and includes forest formations and associated ecosystems, such as mangroves, and restingas (Stehmann et al. 2009).

The Atlantic Forest is recognized as a global hotspot of biodiversity because of the high levels of richness and endemism, associated with the deforestation suffered in the past (Mittermeier et al. 2004; Stehmann et al. 2009). The forest has been reduced to 11.4–16% of its original area (Ribeiro et al. 2009), and its remaining remnants are highly fragmented (Silva & Casteleti 2005).

The remnants of Atlantic Forest in Pernambuco state are mostly small and irregular in shape (Ranta et al. 1998; Trindade et al. 2007). Ranta et al. (1998) observed that most of the forest fragments in southern Pernambuco are smaller than 10 ha, while only about 10% are larger than 100 ha. These small fragments of Atlantic Forest are surrounded by agricultural areas with low chance of a long-term persistence (Silva & Casteleti 2005; Galindo-Leal 2005).

The current conservation paradigm views all fragments, regardless of size, as important for building a conservation mosaic and a regional landscape of connections among Atlantic Forest fragments (Silva & Tabarelli 2000). However, the biological relevance of small fragments has seldom been tested in terms of species richness and importance for preservation of endemic or endangered taxa.

The main goal of this study is to show how small forest fragments can be valuable for the conservation of angiosperms in northeastern Brazil. A survey of vascular plant species occurring in an Atlantic Forest remnant within the Reserva Particular do Patrimônio Natural (RPPN) Fazenda Tabatinga is presented. Included as well are occurrences of several endemic, rare, threatened, and exotic species.

MATERIALS AND METHODS

Study site

The RPPN Fazenda Tabatinga (07°36′22″S, 034°49′14″ W) is located in the municipality of Goiana, Pernambuco state, Brazil, and has an area of ca. 20 ha. According to MMA

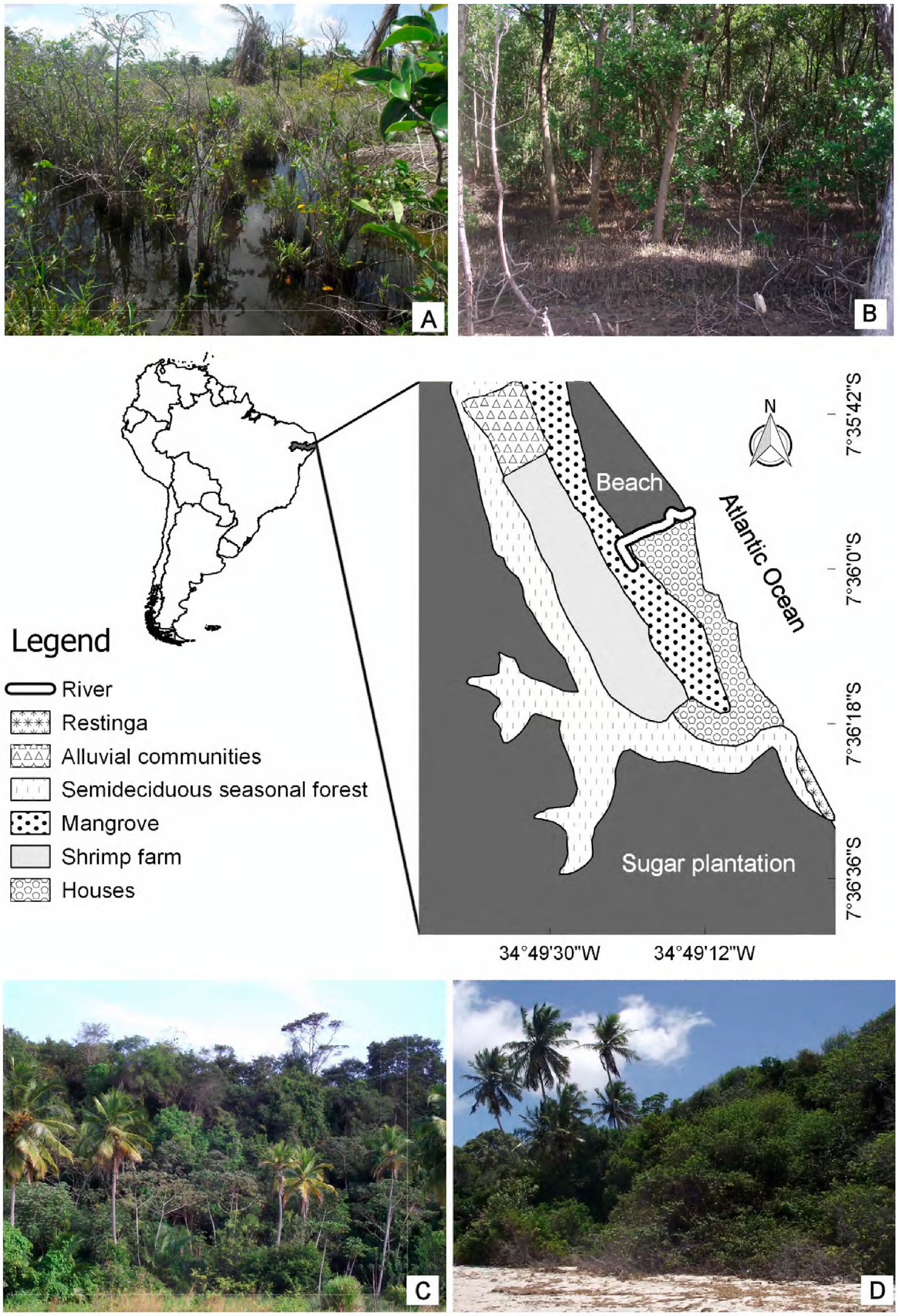

Figure 1. Map of study area with your vegetation types. **A.** Alluvial communities. **B**. Mangrove. **C**. Semideciduous seasonal forest. **D**. Restinga. Photos by D. Ferreira and B. Amorim.

(2000), the region where the area is located is of extreme biological importance and one of the priority areas for biodiversity conservation in the Atlantic Forest biome. The RPPN Fazenda Tabatinga was recognized by the Agência Estadual de Meio Ambiente (CPRH) of Pernambuco state by Decree 19,815 on 2 June 1997. The only information previously available about the plants of the area is an image guide by Cavalcanti et al. (2012).

The RPPN Fazenda Tabatinga has distinct vegetation types. Based on Veloso et al. (1991) and IBGE (1992), these vegetation types can be classified as "alluvial communities" on the flooded depressions with swamp vegetation communities (34°49′33″ S, 007°35′46″ W), mangrove with influences of fresh- and saltwater (34°49′15″ S, 007°36′09″ W), semideciduous seasonal forest on clay soil (34°49′26″ S, 007°36′19″ W), and restinga, which is shrubby forest vegetation on sandy soil with marine influence (34°49′01″ S, 007°36′22″ W) (Figure 1).

Data collection

Botanical samples were collected monthly during both dry and rainy seasons from January 2010 to November 2011. There were 13 days of collection, which represent 72 hours of sampling effort (6 hours per day). The collections were made randomly along the entire area and the different vegetation types. Fertile plant material was dried using the usual methodology (Mori et al. 1985) and incorporated into the UFP herbarium collection with duplicates at JPB, NY, HRCB, UFRN, MAC, and MOBOT herbaria.

The plants were identified using literature and expertise of several taxonomists, as well as collections at UFP, JPB, and IPA herbaria. Families are organized based on Smith et al. (2006, 2008) for ferns and APG IV (2016) for angiosperms. The species names, abbreviations of authors, as well as information about geographical distribution, endemism, and new records for Pernambuco are based on the Brazilian Flora Group [BFG] (2015).

RESULTS

The RPPN Fazenda Tabatinga supports 329 species, belonging to 230 genera and 79 families of angiosperms and two genera and two families (Blechnaceae and Lygodiaceae) of ferns (Table 1). The richest families are Fabaceae (37 spp.: 23 Papilionoideae, 7 Caesalpinioideae and 7 Mimosoideae), Poaceae (25), Cyperaceae (23), Rubiaceae (15) and Asteraceae (12) and together these represent 34% of the local diversity (Table 1). About 43% of the families are represented by only one species (Table 1).

There are 89 species of trees, treelets or arborescent plants such as palms (27%), 92 species of subshrub and shrubs (28%), 92 species of herbs (28%), and 56 species of climbers (17%).

The RPPN Fazenda Tabatinga fragment is small, highly irregular in shape, and supports several species often found in secondary forests, such as *Miconia albicans* (Sw.) Triana and *Sapium glandulosum* (L.) Morong (Figure 2).

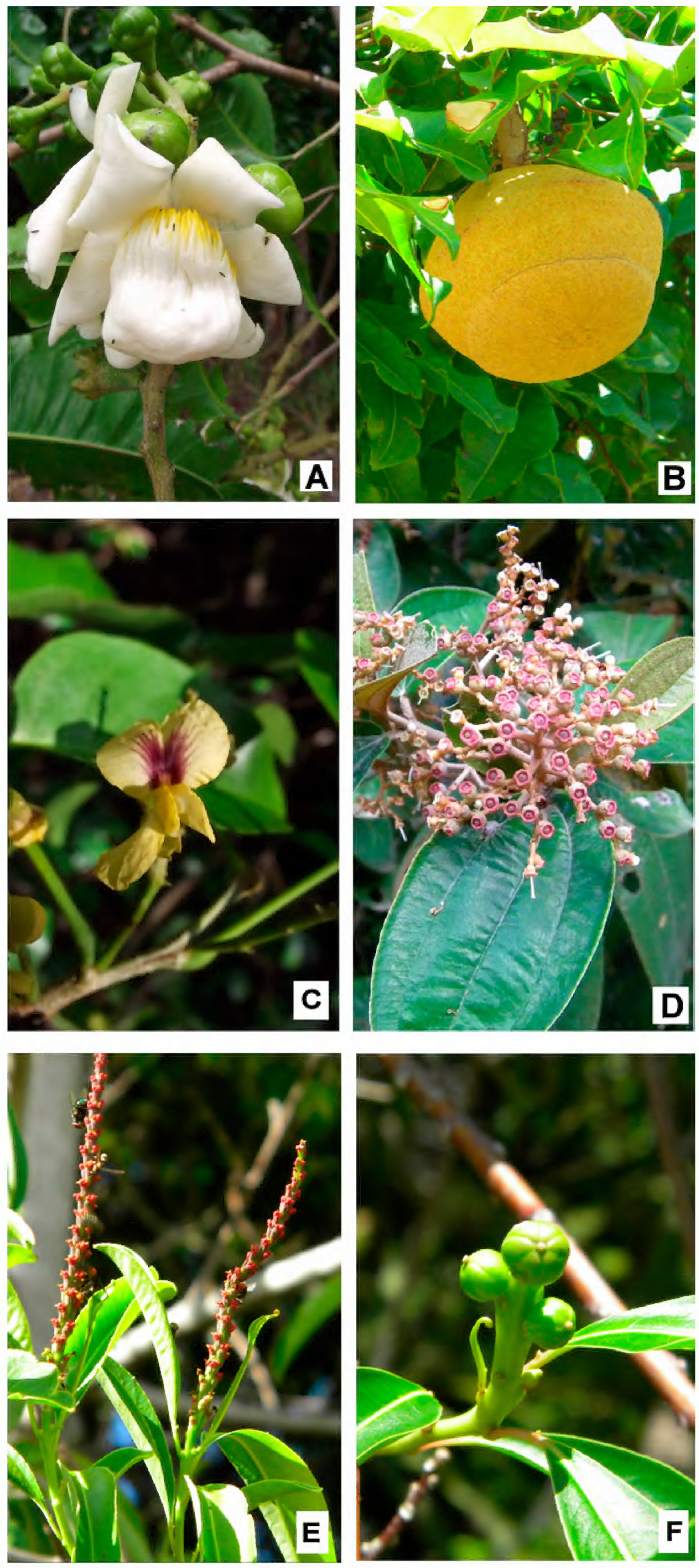

Figure 2. Emergent trees and species of secondary forests found in the RPPN Fazenda Tabatinga, Pernambuco, Brazil. **A–B**. *Lecythis pisonis* (A, flower; B, fruit). **C**. *Pterocarpus rohrii*. **D**. *Miconia albicans*. **E–F**. *Sapium glandulosum* (E, flowers; F, immature fruits). Photos by D. Ferreira and B. Amorim.

Despite the size and shape, emergent trees are found, such as *Lecythis pisonis* Cambess., *Eriotheca macrophylla* (K.Schum.) A. Robyns, and *Pterocarpus rohrii* Vahl (Figure 2), as well as herbaceous plants in the understory, such as *Cryptanthus alagoanus* Leme & J.A.Siqueira, which is the only Bromeliaceae in the area.

These species have the following morphological characters: *Miconia albicans* is a shrub, easily distinguished from other species of Melastomataceae in the area by its leaves with lanulose trichomes abaxially (Figure 2); *Sapium glandulosum* is a treelet with a pair of glands at the leaf base and as such it can be recognized among the other species of Euphorbiaceae in the area (Figure 2); *Lecythis pisonis* is a tree with circumsessile capsules which can be distinguished from other local species of Lecythidaceae by its larger and woody fruit (Figure 2); *Eriotheca macrophylla* (Malvaceae) is a tree with fissured bark, alternate leaves, white flowers with a short staminal tube and schizocarpic fruits with hairy endocarp; *Pterocarpus rohrii* can be differentiated from other species of Fabaceae by its tree habit, red exudate and the orange flowers with a vinaceous standard (Figure 2); and finally, *Cryptanthus alagoanus,* is a terrestrial herb in the Bromeliaceae which has leaves in rosettes and white flowers.

The most visually abundant species in the alluvial communities are *Montrichardia linifera* (Arruda) Schott and *Blechnum serrulatum* Rich., while those in the mangrove are *Avicennia schaueriana* Stapf & Leechm. ex Moldenke, *Conocarpus erectus* L., *Laguncularia racemosa* (L.) C.F.Gartn., and *Rhizophora mangle* L. In the semideciduous seasonal forest, *Eschweilera ovata* (Cambess.) Mart. ex Miers, *Tapirira guianensis* Aubl., *Hirtella racemosa* Lam., and *Vismia guianensis* (Aubl.) Pers. are the most common, and in the restinga, *Sesuvium portulacastrum* (L.) L. and *Dalbergia ecastaphyllum* (L.) Taub. are visually dominant (Figures 3 and 4).

Among these species, *Montrichardia linifera* is distinguished from other species of Araceae by its arborescent habit and sagittate leaves. *Blechnum serrulatum* is a terrestrial herbaceous fern with pinnate leaf blades and sessile or shortly petiolate pinnae which are oblong, linear, lanceolate, and with serrate margins. Among the mangrove species, *Avicennia schaueriana* is recognized by its opposite leaves and tetramerous, zygomorphic flowers; *Conocarpus erectus* is recognizable by its alternate leaves and two glands at the leaf base; *Laguncularia racemosa* by its glands on the petiole apex, opposite leaves, and pentamerous, actinomorphic flowers; and *Rhizophora mangle* by its tetramerous, actinomorphic flowers, rhizophores and black dots on the leaves (Figure 3).

Among the semideciduous seasonal forest species, *Eschweilera ovata* is distinguishable from other species of Lecythidaceae by its smaller fruits (Figure 4). *Tapirira guianensis* can be recognized by its imparipinnate leaves, pentamerous flowers with 10 stamens and ovary with four styles (Figure 4). *Hirtella racemosa* can be distinguished from other species of Chrysobalanaceae by its shrubby habit and pink flowers, while *Vismia guianensis* is a shrub with yellow flowers and ferruginous trichomes on the stems and branches and orange exudate (Figure 4). Among the species most common in the restinga, *Sesuvium portulacastrum* is recognizable due to its succulent leaves and pink flowers, and *Dalbergia ecastaphyllum* by its unifoliolate leaves, white flowers and samaroid fruits (Figure 4).

Bambusa vulgaris Schrad. ex J.C.Wendl., *Catharanthus roseus* (L.) Don, *Elaeis guineensis* Jacq., *Mangifera indica* L., *Terminalia catappa* L., and *Thespesia populnea* (L.) Sol. ex Corrêa are invasive species generally found along the edges of the forest fragment (Figure 5). However, *Elaeis guineensis* is growing in the interior and forms dense agglomerations that aggressively replaces native species (Figure 5).

Invasive species found in the reserve have the following morphological characters: *Bambusa vulgaris* is arborescent with agglomerated culms; *Catharanthus roseus* is distinguished locally by its sub shrubby habit and pink flowers; and *Elaeis guineensis* is an arborescent palm with pinnate leaf blade, and orange to reddish, fleshy fruits (Figure 5). *Terminalia catappa* is a tree with obovate leaves, pentamerous and white flowers, and fleshy fruits (Figure 5), while *Thespesia populnea* is a shrub with alternate leaves, yellow flowers with a long staminal tube and schizocarpic fruits.

Species endemic to the Northeast Region and found in the reserve have the following morphological characters: *Alseis pickelii* is a tree with obovate leaves, glabrous adaxially and pilose abaxially at the axils of the secondary venation and capsular fruit (Figure 6); *Annona pickelii* is a treelet with simple and ferruginous trichomes on the branches and elliptical to ovate leaves (Figure 7); *Aphelandra nuda* is differentiated by its climbing, woody habit and pink corolla (Figure 7); *Calyptranthes dardanoi* is a shrub to treelet and can be recognized by its opposite leaves, paniculate inflorescence, flowers with calyx fused in bud which opens or falls as a calyptra and drupaceous fruits; and *Dalechampia coriacea* is a woody climber with cordate leaves and flowers involved by two bracts (Figure 6). *Duguetia gardneriana* is a treelet easily distinguished from other species of Annonaceae by its branches with scaly trichomes (Figure 6). *Licania tomentosa* is a tree differentiated from other species of Chrysobalanaceae by its floccose trichomes (Figure 6). *Mimosa pseudosepiaria* is a shrub with aculeate branches, simple, glandular trichomes and white flowers (Figure 6). *Salzmannia nitida* is a treelet with opposite leaves, inflorescences axillary glomerules, flowers tetramerous and yellow, with a bifid style (Figure 6). *Swartzia pickelii* is a tree with alternate, pinnate leaves, flowers with only one petal, dimorphic anthers, rachis and floral bud with ferruginous trichomes (Figure 7).

DISCUSSION

Although the small size when compared to most of forest fragments in the region, the RPPN Fazenda Tabatinga keeps the general floristic pattern found on lowland forests and restingas in northeastern Brazil (Freire 1990; Almeida-Jr. et al. 2007, 2009; Sacramento et al. 2007; Barbosa et al. 2011; Cantarelli et al. 2012; Alves et al. 2013). This evidence suggests the great conservation value of the area in the region, despite the intense anthropic pressure that typically affects small fragments with similar dimensions (Girão et al. 2007; Ribeiro et al. 2009; Lôbo et al. 2011).

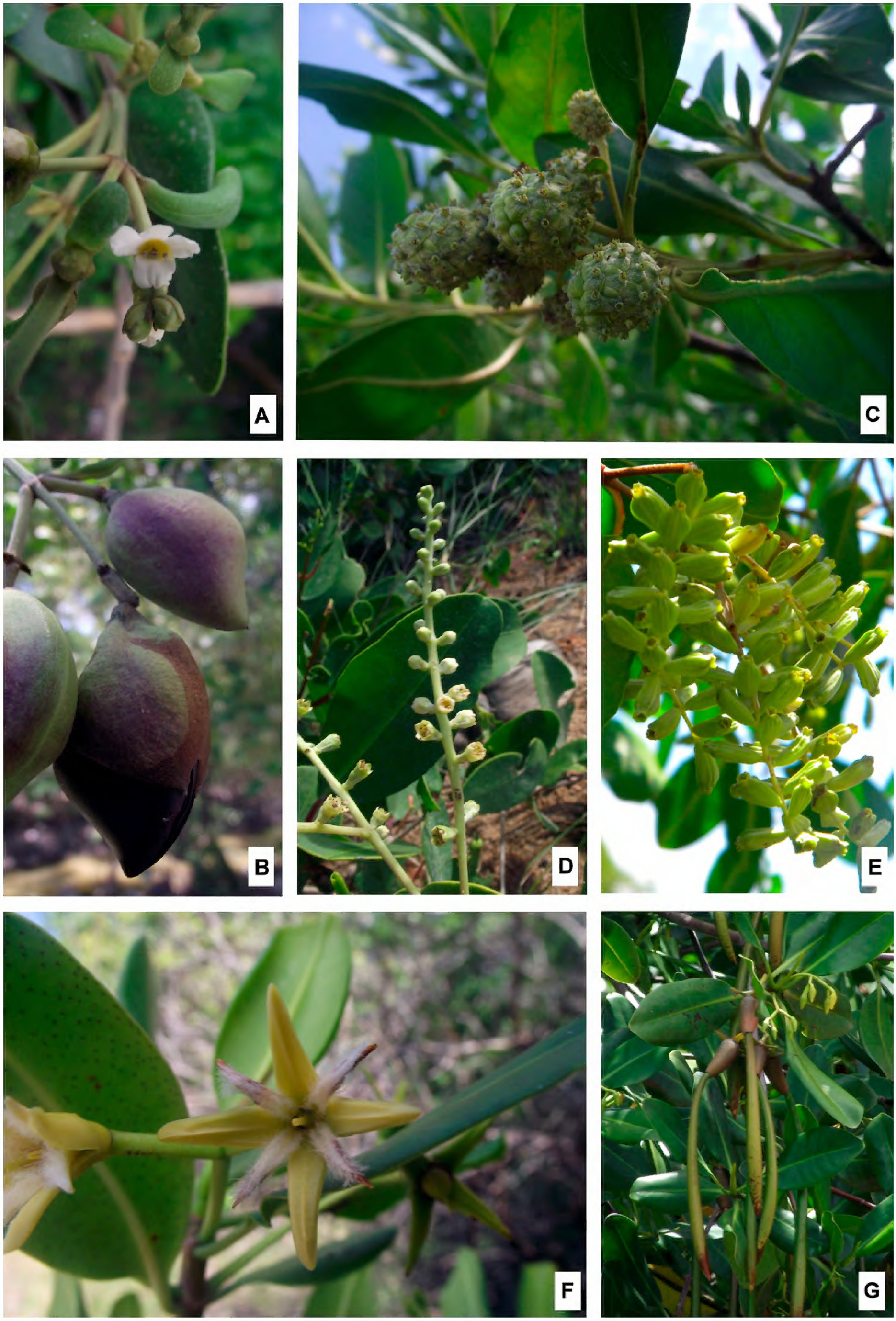

Figure 3. Plants species found in mangrove of the RPPN Fazenda Tabatinga, Pernambuco, Brazil. **A–B**. *Avicennia schaueriana* (**A**, flower; **B**, fruits). C. *Conocarpus erectus*. **D–E**. *Laguncularia racemosa* (**D**, flowers; **E**, fruits). **F–G**. *Rhizophora mangle* (**F**, flower; **G**, vegetative propagation). Photos by D. Ferreira and B. Amorim.

Figure 4. Common plant species found in restinga and semideciduous seasonal forest, RPPN Fazenda Tabatinga, Pernambuco, Brazil. **A**. *Dalbergia ecastaphyllum*. **B**. *Eschweilera ovata*. **C**. *Hirtella racemosa* (flowers). **D**. *Hirtella racemosa* (fruit). **E**. *Sesuvium portulacastrum*. **F**. *Tapirira guianensis*. **G**. *Vismia guianensis*. Photos by D. Ferreira and B. Amorim.

A comparative analysis with other floristic studies in the Atlantic Forest of Pernambuco state shows that even with its small area, the species richness of the RPPN Fazenda Tabatinga is considerable and exceeds the number of species found in other areas (Rodal et al. 2005; Almeida Jr. et al. 2007, 2009; Sacramento et al. 2007; Silva et al. 2008). The high richness may be due, among other factors, to the diversity of vegetation types found and the greater collection effort of the herbaceous component; some previous studies prioritized sampling of the tree layer (Almeida-Jr. & Zickel 2012; Santos-Filho et al. 2013; Medeiros et al. 2014).

Figure 5. Exotic species found in RPPN Fazenda Tabatinga, Pernambuco, Brazil. **A**. *Elaeis guineenses*. **B**. *Terminalia catappa*. Photos by D. Ferreira and B. Amorim.

The similar scope and collection effort applied to the various habits and vegetation formations confirm that herbs and shrubs play a greater role than is commonly indicated in the general model of floristic composition of the Atlantic Forest (Rodal et al. 2005; Almeida Jr. et al. 2007, 2009; Sacramento et al. 2007; Silva et al. 2008; Alves et al. 2013).

The heterogeneity of vegetation formations has a direct bearing on high species richness (Smith et al. 1997; Walker et al. 2003; Durigan et al. 2008) as evidenced in areas of Atlantic Forest (Dufour 2006; Pereira et al. 2007; Carvalho et al. 2008; Durigan et al. 2008; Santos-Filho et al. 2013). In addition, areas of ecotones tend to have higher species richness because of the coexistence of floristic elements from various biomes or ecosystems and the intense process of speciation (Smith et al. 1997; Walker et al. 2003).

Fabaceae was the most species-rich family, as found in other inventories in areas of Atlantic Forest (Rodal et al. 2005; Barbosa et al. 2011; Melo et al. 2011; Valadares et al. 2011). Poaceae and Cyperaceae also showed high species richness in the reserve and are commonly found in restingas and lowland Atlantic Forest of the region (Almeida Jr. et al. 2007, 2009; Sacramento et al. 2007; Barbosa et al. 2011; Melo et al. 2011; Cantarelli et al. 2012). Combined, these two families account for ca. 56% of the herbaceous species of the reserve.

In addition to the high species richness, another factor that denotes the importance of the area is the presence of endemic, rare and threatened species. Among the species found, 66 are considered endemic to Brazil and 28 to the Atlantic Forest (Lista de Espécies da Flora do Brasil 2015). The following 12 species are distributed exclusively in the states of the Northeast Region: *Alseis pickelii* Pilg. & Schmale, *Annona pickelii* (Diels) H. Rainer, *Aphelandra nuda* Nees, *Calyptranthes dardanoi* Mattos, *Cryptanthus alagoanus* Leme & J.A. Siqueira, *Cupania impressinervia* Acev.-Rodr., *Dalechampia coriacea* Klotzsch ex Müll.Arg., *Duguetia gardneriana* Mart., *Licania tomentosa* (Benth.) Fritsch, *Mimosa pseudosepiaria* Harms, *Salzmannia nitida* DC., and *Swartzia pickelii* Killip ex Ducke (Figure 6). Some endemic species totally or partially follow the patterns of the Pernambuco Endemism Center (*sensu* Prance 1982), such as *Aphelandra nuda* Nees (BFG 2015) and *Swartzia pickelii* Killip ex Ducke (Cowan 1967; BFG 2015).

Aphelandra nuda Nees is rare, according to Kameyama et al. (2009). This species was known only from the type material and a collection of mid-19th century but recently

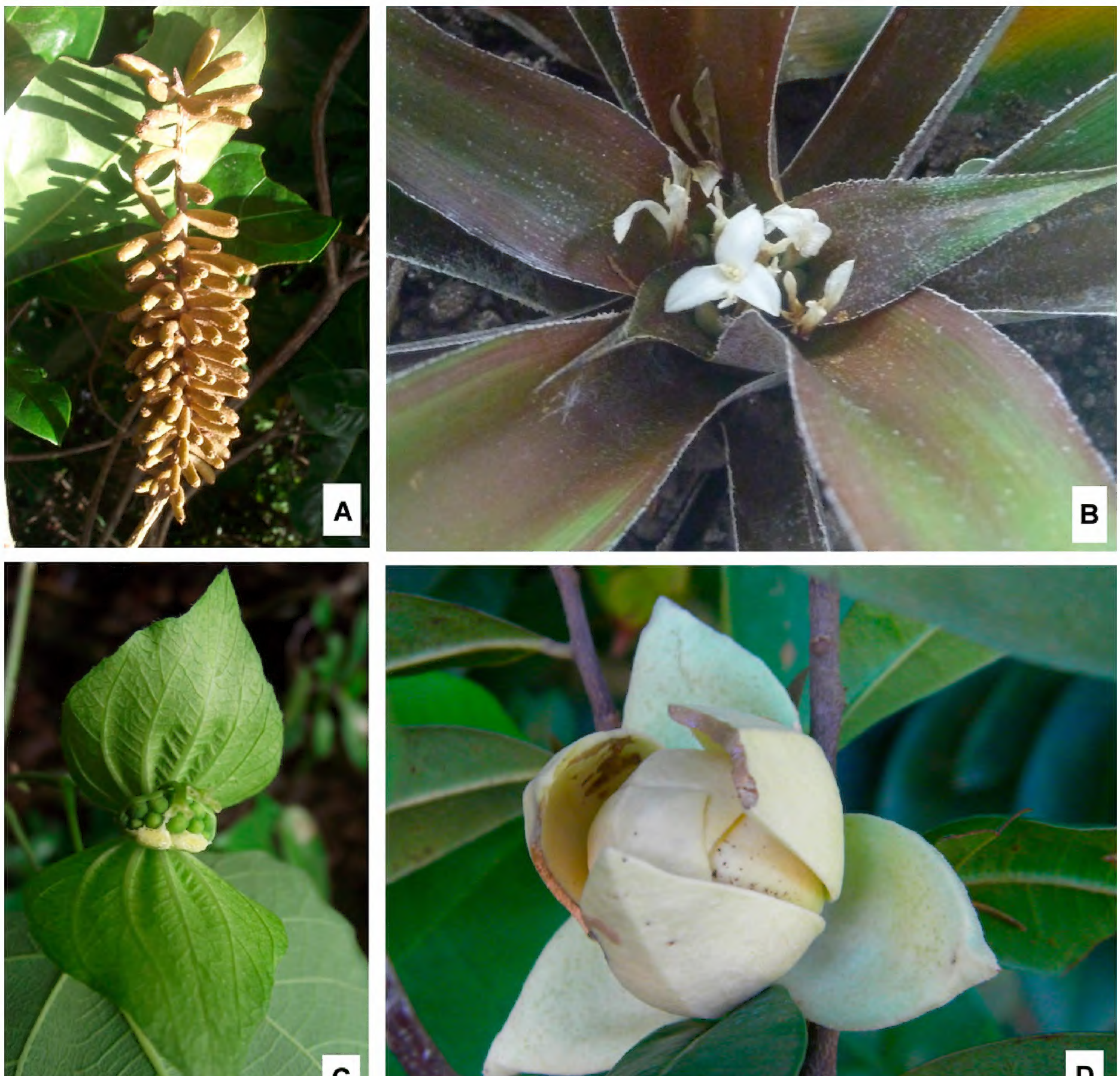

Figure 6. Endemic species of the Northeast Region found in the RPPN Fazenda Tabatinga, Pernambuco, Brazil. **A**. *Alseis pickelii*. **B**. *Cryptanthus alagoanus*. **C**. *Dalechampia coriacea*. **D**. *Duguetia gardneriana*. **E**. *Licania tomentosa*. **F**. *Mimosa pseudosepiaria*. **G**. *Salzmannia nitida*. Photos by D. Ferreira and B. Amorim.

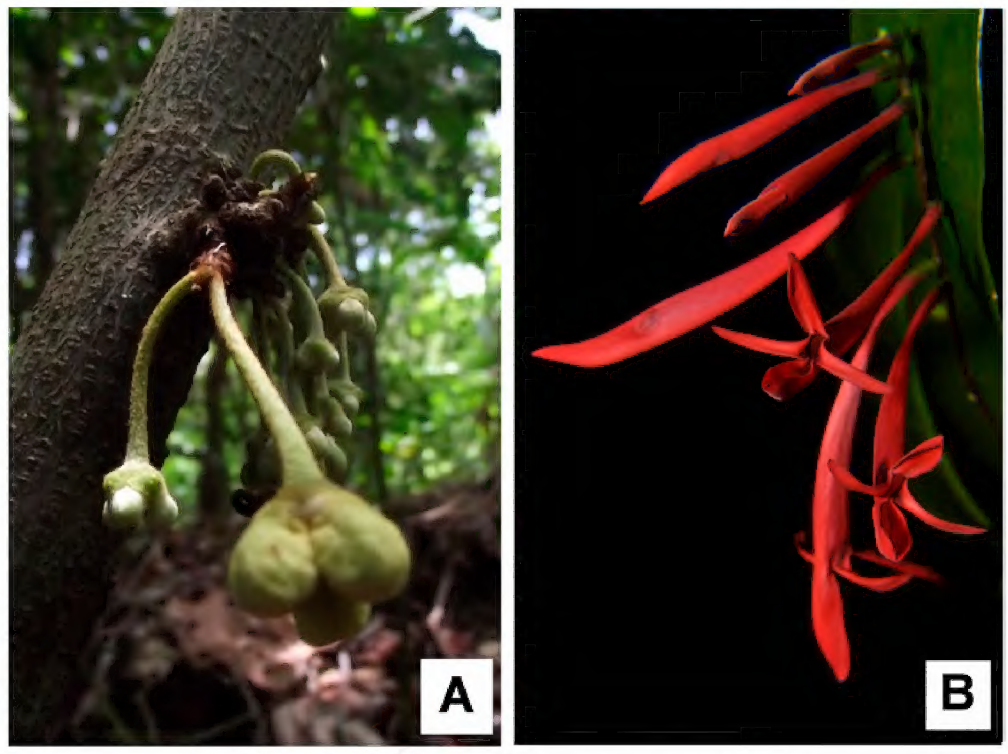

Figure 7. Threatened and rare species of the RPPN Fazenda Tabatinga, Pernambuco, Brazil. **A**. *Annona pickelii*. **B**. *Aphelandra nuda*. **C**. *Apuleia leiocarpa*. **D**. *Swartzia pickelii*. Photos by D. Ferreira, D. Araújo and B. Amorim.

found in the states of Alagoas and Rio Grande do Norte (Figure 7).

Three species of the area are considered threatened (Figure 7), *Annona pickelii (Diels) H. Rainer (=Rollinia pickelii* Diels) is classified as Vunerable by Lobão et al. (2013) and IUCN (2015). *Apuleia leiocarpa* (Vogel) J.F. Macbr. is classified as Vunerable by Lima et al. (2013). *Swartzia pickelii* is indicated as threatened by MMA (2008) and as Endangered by Fundação Biodiversitas (2005).

Despite the relevance of the area for its species diversity and endemism, the flora of the RPPN Fazenda Tabatinga shows signs of biological infiltration by exotic species common to forest fragments north of the São Francisco River, which indicates the human pressure it faces (Sacramento et al. 2007; Zickel et al. 2007; Barbosa et al. 2011; Melo et al. 2011). In addition, species that are typical of secondary forests are also found in the reserve. This study also corroborates *Sapium glandulosum* and *Miconia albicans*, as typical species from secondary forests fragments and coastal vegetation (Goldenberg 2004; Rodal et al. 2005).

The results show that RPPN Fazenda Tabatinga retains a vegetation formations typical of coastal areas of northeastern Brazil, and the flora is as expected for restingas and associated ecosystems of the east coast of Brazil. In addition, the reserve supports threatened and endemic species, reinforcing its importance for the conservation of the flora of Pernambuco, despite being a small fragment. Thus, there is a need for a management plan that includes, among other aspects, the eradication of exotic species to ensure the protection and maintenance of the biodiversity of the site.

ACKNOWLEDGEMENTS

The first author thanks CNPq for the undergraduate research scholarship granted. The authors thank the project "Sustainability of Atlantic Forest fragments of Pernambuco, and its implications for local conservation and development", funded by BMBF-Germany and CNPq-Brazil and the "Atlantic Forest Project", funded by CNPq, NSF (DEB-0946618), Velux Stiftung and Beneficia Foundation which funded the collection trips. We are grateful to Rabelo Family for the collecting permission in the RPPN Fazenda Tabatinga. The authors also thank the curators of the herbaria visited, the collectors involved in the work, especially to the field assistant, Marcos Chagas, and all the taxonomists who helped in the identification of plant samples: Anderson Geyson Alves Araújo (Sapotaceae), Universidade Federal do Espírito Santo (UFES); Ariclenes de Almeida Mélo Araújo (Aristolochiaceae), Universidade Federal de Pernambuco (UFPE); Anna Flora de Novaes Pereira, (Blechnaceae and Lygodiaceae), Universidade Federal do Vale do São Francisco (UNIVASF); Aline Vieira de Melo Silva (Burmanniaceae, Gentianaceae and Lentibulariaceae), UFPE; Diogo Amorim de Araújo (Dioscoreaceae and Passifloraceae), Universidade Estadual Paulista Júlio de Mesquita Filho (UNESP); Daianely da Silva Correia (Acanthaceae), Universidade Federal de Alagoas (UFAL); Elisabeth Cabral Córdula (Fabaceae), Instituto de Pesquisa Jardim Botânico do Rio de Janeiro; Earl Celestino de Oliveira Chagas (Melastomataceae), Universidade Federal da Paraíba (UFPB); Edlley Max Pessoa da Silva (Orchidaceae), UFPE; Fernanda Oliveira Silva (Ochnaceae), UFPB; Julio Antonio Lombardi (Vitaceae), UNESP; Juan Diego García-González (Polygonaceae), UFPE; José Iranildo Miranda de Melo (Boraginaceae), Universidade Estadual da Paraíba (UEPB); Jomar Jardim (Rubiaceae), Universidade Federal do Rio Grande do Norte (UFRN); James Lucas da Costa-Lima (Erythroxylaceae), Universidade Estadual de Feira de Santana (UEFS); Maurício Carnaúba da Silva Mota (Bignoniaceae), UFAL; Maria do Céo Rodrigues Pessoa (Rubiaceae), UFPB; Maria de Fátima Agra (Lamiaceae; Solanaceae and Verbenaceae), UFPB; Maria de Fátima de Araújo Lucena (Euphorbiaceae), Universidade Federal de Campina Grande (UFCG); Maria das Graças Lapa Wanderley (Bromeliaceae and Xyridaceae), Instituto de Botânica de São Paulo; Maria Iracema Bezerra Loiola (Combretaceae and Erythroxylaceae), Universidade Federal do Ceará (UFC); Maria Regina de Vasconcellos Barbosa (Rubiaceae), UFPB; Maria do Socorro Pereira (Rubiaceae), UFCG; Maria

Teresa Aureliano Buril Vital (Convolvulaceae), Universidade Federal Rural de Pernambuco (UFRPE); Renato Goldenberg (Melastomataceae), Universidade Federal do Paraná (UFPR) and Suellen de Oliveira Santos (Asteraceae and Lauraceae), UFPE.

LITERATURE CITED

Almeida Jr., E.B. & C.S. Zickel. 2012. Análise fitossociológica do estrato arbustivo-arbóreo de uma floresta de restinga no Rio Grande do Norte. Revista Brasileira de Ciências Agrárias 7: 286–291. doi: 10.5039/agraria.v7i2a1218

Almeida Jr., E.B., M.A. Olivo, E.L. Araújo & C.S. Zickel. 2009. Caracterização da vegetação de restinga da RPPN de Maracaípe, PE, Brasil, com base na fisionomia, flora, nutrientes do solo e lençol freático. Acta Botanica Brasilica 23: 36–48. doi: 10.1590/S0102-33062009000100005

Almeida Jr, E.B., R.M.M. Pimentel & C.S. Zickel. 2007. Flora e formas de vida de uma área de restinga no Litoral Norte de Pernambuco, Brasil. Revista de Geografia 24: 19–34. http://www.revista.ufpe.br/revistageografia/index.php/revista/article/view/110/51

Alves, M., A. Alves-Araújo, B. Amorim, A. Araújo, D. Araújo, M.F. Araújo, et al. 2013. Inventário de angiospermas dos fragmentos de Mata Atlântica da usina São José, Igarassu, Pernambuco; pp. 133–158, in: M.T. Buril, A. Melo, A. Alves-Araújo & M. Alves (eds.). Plantas da Mata Atlântica: guia de árvores e arbustos da usina São José (Pernambuco). Olinda: Editora Livro Rápido.

APG IV (The Angiosperm Phylogeny Group). 2016. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG IV. Botanical Journal of the Linnean Society 181(1): 1–20. doi: 10.1111/boj.12385

Barbosa, M.R.V., W.W. Thomas, E.L.P. Zárate, R.B. Lima, M.F. Agra, et al. 2011. Checklist of vascular plants of the Guaribas Biological Reserve, Paraíba, Brazil. Revista Nordestina de Biologia 20: 79–106. http://periodicos.ufpb.br/ojs/index.php/revnebio/article/view/11912

BFG (Brazilian Flora Group). 2015. Growing knowledge: an overview of seed Plant diversity in Brazil. Rodriguésia 66(4): 1085–1113. 10.1590/2175-7860201566411

Cantarelli, J.R.R., E.B. Almeida Jr., F.S. Santos-Filho & C.S. Zickel. 2012. Tipos fitofisionômicos e florística da restinga da APA de Guadalupe, Pernambuco, Brasil. Insula 41: 95–117. doi: 10.5007/2178-4574.2012n41p95

Carvalho, F.A., M.T. Nascimento & A.T. Oliveira Filho. 2008. Composição, riqueza e heterogeneidade da flora arbórea da bacia do rio São João, RJ, Brasil. Acta Botanica Brasilica 22: 929–940. doi: 10.1590/S0102-33062008000400004

Cavalcanti, D., B.S. Amorim & M. Alves. 2012. Plants of the Atlantic Rainforest, Goiana, Pernambuco, Brazil. Plantas da Mata Atlântica, RPPN Fazenda Tabatinga. Rapid Color Guide 459. Chicago: The Field Museum. 10 pp.

Cowan, R.S. 1967. *Swartzia* (Leguminoseae, Caesalpinioideae, Swartzieae). Flora Neotropica 1: 1–228.

Dufour, A., F. Gadallah, H.H. Wagner, A. Guisan & A. Buttler. 2006. Plant species richness and environmental heterogeneity in a mountain landscape: effects of variability and spatial configuration. Ecography 29(4): 573–584. doi: 10.1111/j.0906-7590.2006.04605.x

Durigan, G., L.C. Bernacci, G.A.D.C. Franco, G.F. Arbocz, J.P. Metzger & E.L.M. Catharino. 2008. Estádio sucessional e fatores geográficos como determinantes da similaridade florística entre comunidades florestais no Planalto Atlântico, Estado de São Paulo, Brasil. Acta Botanica Brasilica 22 (1): 51–62. doi: 10.1590/S0102-33062008000100007

Freire, M.S.B. 1990. Levantamento florístico do Parque Estadual das Dunas do Natal. Acta Botanica Brasilica 4(2): 41–59. doi: 10.1590/S0102-33061990000300006

Fundação Biodiversitas. 2005. Lista da flora brasileira ameaçada de extinção. Fundação Biodiversitas. Accessed at http://www.biodiversitas.org.br/floraBr/consulta_fim.asp, 4 August 2015.

Galindo-Leal, C. 2005. Reunindo as peças: a fragmentação e a conservação da paisagem; pp. 372–380, in: C. Galindo-Leal & I.G. Câmara (eds.). Mata Atlântica: biodiversidade, ameaças e perspectivas, c. 1. São Paulo: Fundação SOS Mata Atlântica / Belo Horizonte: Conservação Internacional.

Girão, L.C., A.V. Lopes, M. Tabarelli & E.M. Bruna. 2007. Changes in tree reproductive traits reduce functional diversity in a fragmented Atlantic Forest landscape. PLoS ONE 2(9): e908. doi: 10.1371/journal.pone.0000908

Goldenberg, R. 2004. O gênero *Miconia* (Melastomataceae) no Estado do Paraná, Brasil. Acta Botanica Brasilica 18(4): 927–947. doi: 10.1590/S0102-33062004000400024

IBGE (Instituto Brasileiro de Geografia e Estatística). 1992. Manual técnico da vegetação brasileira. Rio de Janeiro: IBGE. 92 pp.

IUCN (International Union for Conservation of Nature). 2015. The IUCN Red List of threatened species. Version 2015.2. Accessed at http://www.iucnredlist.org, 4 August 2015.

Kameyama, C., A.L.A. Côrtes, S.R. Profice, D.M. Braz & D.C. Daly. 2009. Acanthaceae; pp. 39–43, in: A.M. Giulietti, A. Rapini, M.J.G. Andrade, L.P. Queiroz & J.M.C. Silva (orgs.). Plantas raras do Brasil. Belo Horizonte: Conservação Internacional.

Lima, H.C., É.R. Souza, A.M.G.A. Tozzi, A.P.F. Perez, A.S. Flores, et al. 2013. Fabaceae/Leguminosae; pp. 516–548, in: G. Martinelli & M.A. Moraes (eds.). Livro vermelho da flora do Brasil. Rio de Janeiro: Andrea Jakobsson Estúdio.

Lista de Espécies da Flora do Brasil. 2015. Jardim Botânico do Rio de Janeiro. Accessed at http://floradobrasil.jbrj.gov.br, 4 August 2015.

Lobão, A.Q., D.C. Kutschenko, F.S.M. Barros & T. Messina. 2013. Annonaceae; pp. 144–150, in: G. Martinelli and M.A. Moraes (eds.). Livro vermelho da flora do Brasil. Rio de Janeiro: Andrea Jakobsson Estúdio.

Lôbo, D., T. Leão, F.P.L. Melo, A.M.M. Santos & M. Tabarelli. 2011. Forest fragmentation drives Atlantic forest of northeastern Brazil to biotic homogenization. Diversity and Distributions 17(2): 287–296. doi: 10.1111/j.1472-4642.2010.00739.x

Medeiros, D.P.W., E.B. Almeida Jr., M.C. Abreu, F.S. Santos-Filho & C.S. Zickel. 2014. Riqueza e caracterização da estrutura lenhosa da vegetação de restinga de Baia Formosa, RN, Brasil. Pesquisas, Botânica 65: 183–199. http://www.anchietano.unisinos.br/publicacoes/botanica/botanica65/BOTANICA%2065.pdf

Melo, A., B.S. Amorim, J. García-González, J.A.N. de Souza, E.M. Pessoa, et al. 2011. Updated floristic inventory of the angiosperms of the Usina São José, Igarassu, Pernambuco, Brazil. Revista Nordestina de Biologia 20(2): 3–26. http://periodicos.ufpb.br/ojs/index.php/revnebio/article/view/10647/6967

Mittermeier, R.A., P.R. Gil, M. Hoffmann, J. Pilgrim, T. Brooks, et al. 2004. Hotspots revisited. Mexico City: CEMEX. 392 pp.

MMA (Ministério do Meio Ambiente, dos Recursos Hídricos e da Amazônia Legal). 2000. Avaliação e ações prioritárias para a conservação da biodiversidade da Mata Atlântica e Campos Sulinos. Brasília: Conservation International do Brasil, Fundação SOS Mata Atlântica and Fundação Biodiversitas. 46 pp.

MMA (Ministério do Meio Ambiente). 2008. Instrução Normativa nº 6, 23 de setembro de 2008. Ministério do Meio Ambiente. Accessed at http://www.mma.gov.br/estruturas/179/_arquivos/179_05122008033615.pdf, 4 August 2015.

Mori, S.A., L.A. Mattos-Silva, G. Lisboa & L. Coradin. 1985. Manual de manejo do herbário fanerogâmico. Ilhéus: Centro de Pesquisas do Cacau. 97pp.

Pereira, J.A.A., A.T. Oliveira-Filho & J.P. Lemos-Filho. 2007. Environmental heterogeneity and disturbance by humans control much of the tree species diversity of Atlantic montane forest fragments in SE Brazil. Biodiversity and Conservation 16(6): 1761–1784. doi: 10.1007/s10531-006-9063-4

Prance, G.T. 1982. Forest refuges: evidence from woody angiosperms; pp. 137–158, in: G.T. Prance (ed.). Biological Diversification in the Tropics. New York: Columbia University Press.

Ranta, P., T. Blom, J. Niemelã, E. Joensuu & M. Siitonen. 1998. The fragmented Atlantic rain forest of Brazil: size, shape and distribution of forest fragments. Biodiversity and Conservation 7: 385–403.

Ribeiro, M.C., J.P. Metzger, A.C. Martensen, F.J. Ponzoni & M.M. Hirota. 2009. The Brazilian Atlantic Forest: How much is left, and how is the remaining forest distributed? Implications for conservation. Biological Conservation 142(6): 1141–1153. doi: 10.1016/j.biocon.2009.02.021

Rodal, M.J.N., M.F.A. Lucena, K.V.S.A. Andrade & A.L. Melo. 2005. Mata do Toró: uma floresta estacional semidecidual de terras baixas no nordeste do Brasil. Hoehnea 32(2): 283–294. http://www.ambiente.sp.gov.br/institutodebotanica/files/2011/11/hoehnea32n2a08.pdf

Sacramento, A.C., C.S. Zickel & E.B. Almeida Jr. 2007. Aspectos Florísticos da Vegetação de Restinga no Litoral de Pernambuco. Revista Árvore 31(6): 1121–1130. doi: 10.1590/S0100-67622007000600017

Santos-Filho, F.S., E.B. Almeida Jr & C.S. Zickel. 2013. Do edaphic aspects alter vegetation structures in the Brazilian restinga? Acta Botanica Brasilica 27(3): 613–623. doi: 10.1590/S0102-33062013000300019

Silva, J.M.C. & M. Tabarelli. 2000. Tree species impoverishment and the future flora of the Atlantic forest of northeast Brazil. Nature 404: 72–74. doi: 10.1038/35003563

Silva, J.M.C. & C.H. Casteleti. 2005. Estado da biodiversidade da Mata Atlântica brasileira; pp. 43–59, in: C. Galindo-Leal & I.G. Câmara (eds.). Mata Atlântica: diversidade, ameaças e perspectivas, c. 5. São Paulo: Fundação SOS Mata Atlântica / Belo Horizonte: Conservação Internacional.

Silva, S.S.L., C.S. Zickel & L.A. Cestaro. 2008. Flora vascular e perfil fisionômico de uma restinga no litoral sul de Pernambuco, Brasil. Acta Botanica Brasilica 22(4): 1123–1135. doi: 10.1590/S0102-33062008000400023

Smith, A.R., K.M. Pryer, E. Schuettpelz, P. Korall, H. Schneider & P.G. Wolf. 2006. A classification for extant ferns. Taxon 55(3): 705–731. doi: 10.2307/25065646

Smith, A.R., K.M. Pryer, E. Schuettpelz, P. Korall, H. Schneider & P.G. Wolf. 2008. Fern classification; pp. 417-467, in: T.A. Ranker & C.H. Haufler (eds.). Biology and evolution ferns and lycophytes. New York: Cambridge University Press.

Smith, T.B., R.K. Wayne, D.J. Girman & M.W. Bruford. 1997. A role for ecotones in generating rainforest biodiversity. Science 276(5320): 1855–1857. doi: 10.1126/science.276.5320.1855

Stehmann, J.R., R.C. Forzza, A. Salino, M. Sobral, D.P. Costa & Y. Kamino. 2009. Plantas da Floresta Atlântica. Rio de Janeiro: Jardim Botânico do Rio de Janeiro. 516pp.

Tabarelli, M., L.P. Pinto, J.M.C. Silva, M. Hirota & L. Bedê. 2005. Challenges and opportunities for biodiversity conservation in the Brazilian Atlantic Forest. Conservation Biology 19(3): 695–700. doi: 10.1111/j.1523-1739.2005.00694.x

Trindade, M.B., H.P. Silva, A.C.B. Lins-e-Silva & M. Schessl. 2007. Utilização de sensoriamento remoto na análise de fragmentação da Mata Atlântica no litoral Norte de Pernambuco, Brasil; pp. 1907–1917, in: Anais do XIII Simpósio Brasileiro de sensoriamento remoto. Florianópolis: Instituto Nacional de Pesquisas Espaciais.

Valadares, R.T., F.F.C. Souza, N.G.D. Castro, A.L.S. Peres, S.Z. Schneider & M.L.L. Martins. 2011. Levantamento florístico de um brejo-herbáceo localizado na restinga de Morada do Sol, município de Vila Velha, Espírito Santo, Brasil. Rodriguésia 62 (4): 827–834. http://rodriguesia-seer.jbrj.gov.br/index.php/rodriguesia/article/view/258/130

Veloso, H.P., A.L. Rangel-Filho & J.C.A. Lima. 1991. Classificação da vegetação brasileira, adaptada a um sistema universal. Rio de Janeiro: IBGE. 124pp.

Walker, S., J.B. Wilson, J.B. Steel, G.L. Rapson, B. Smith, et al. 2003. Properties of ecotones: evidence from five ecotones objectively determined from a coastal vegetation gradient. Journal of Vegetation Science 14(4): 579–590. doi: 10.1111/j.1654-1103.2003.tb02185.x

Zickel, C.S., E.B. Almeida Jr., D.P.W. Medeiros, P.B. Lima, T.M.S. Souza & A.B. Lima. 2007. Magnoliophyta species of restinga, state of Pernambuco, Brazil. Check List 3(3): 224–241. doi: 10.15560/3.3.224

Authors' contributions: All authors collected the data, identified the specimens, wrote the text and made the analysis.

Received: 1 October 2015
Accepted: 17 September 2016
Academic editor: Juliana de Paula-Souza

Table 1. List of plant species occurring in the RPPN Fazenda Tabatinga, Goiana, Pernambuco, Brazil with their families, habits, vegetation types where the species were found and voucher. Legend: Habits: climber (H.) = herbaceous climber; climber (W.) = woody climber. Vegetation types: ACO = alluvial communities, SSF = semideciduous seasonal forest, MAN = mangrove, RES = restinga. Voucher: AM = Aline Melo et al.; BSA = Bruno Sampaio Amorim et al.; DAA = Diogo Amorim de Araújo et al.; DC = Débora Cavalcanti et al.; EDM = Emanoel Deodato de Mendonça et al.; PR = Photographic record; *Sterile sample.

Family/species	Habit	Vegetation type	Voucher
Acanthaceae			
Aphelandra nuda Nees[12346]	Climber (W.)	SSF	DC 606
Avicennia schaueriana Stapf & Leechm. ex Moldenke	Tree	MAN	DC 452
Aizoaceae			
Sesuvium portulacastrum (L.) L.	Herb	RES	DC 165
Amaranthaceae			
Amaranthus blitum L.	Herb	MAN	DC 451
Blutaparon portulacoides (A.St.-Hil.) Mears	Herb	MAN	DC 554
Indet.	Herb	RES	AM 724

Continued

Table 1. *Continued.*

Family/species	Habit	Vegetation type	Voucher
Anacardiaceae			
Anacardium occidentale L.	Tree	SSF	DC 251
Mangifera indica L.[8]	Tree	SSF	DC 347
Schinus terebinthifolius Raddi	Tree	RES	DC 322
Tapirira guianensis Aubl.	Tree	SSF	DC 127
Thyrsodium spruceanum Benth.	Treelet	SSF	DC 634*
Annonaceae			
Annona pickelii (Diels) H.Rainer[1237]	Treelet	SSF	DC 444
Annona sp.	Treelet	ACO	DC 584
Duguetia gardneriana Mart.[13]	Treelet	SSF	DC 490
Guatteria schomburgkiana Mart.	Tree	SSF	DC 147
Apocynaceae			
Blepharodon pictum (Vahl) W.D.Stevens	Climber (H.)	SSF	DC 627
Catharanthus roseus (L.) Don[8]	Subshrub	MAN	DC 546
Hancornia speciosa Gomes	Tree	SSF	DC 516
Himatanthus cf. *bracteatus* (A. DC.) Woodson[12]	Treelet	SSF	DC 105
Mandevilla hirsuta (A. Rich.) K.Schum.	Climber (H.)	SSF	DAA 1682
Mandevilla scabra (Hoffmanns. *ex* Roem. & Schult.) K.Schum.	Climber (H.)	SSF	DC 562
Matelea maritima (Vell.) Fontella[5]	Climber (H.)	SSF	DC 587
Matelea orthosioides (E.Fourn.) Fontella	Climber (H.)	SSF	DC 577
Odontadenia sp.	Climber (H.)	SSF	DC 609
Tabernaemontana flavicans Willd. *ex* Roem & Schult.	Treelet	SSF	DC 447
Temnadenia odorifera (Vell.) J.F.Morales[12]	Climber (W.)	SSF	DC 488
Araceae			
Montrichardia linifera (Arruda) Schott	Climber (H.)	ACO	DC 172*
Philodendron cf. *acutatum* Schott	Herb	SSF	DC 96*
Indet.	Herb	SSF	DC 398
Arecaceae			
Bactris cf. *ferruginea* Burret[12]	Arborescent	SSF	DC 481
Cocos nucifera L.	Arborescent	RES, SSF	PR
Elaeis guineensis Jacq.[8]	Arborescent	SSF	DC 517
Aristolochiaceae			
Aristolochia cf. *papillaris* Mast.[1]	Climber (H.)	SSF	DAA 1663
Asteraceae			
Bidens pilosa L.	Subshrub	SSF	DC 75
Cyanthillium cinereum (L.) H.Rob.	Subshrub	SSF	DC 106
Cyrtocymura scorpioides (Lam.) H.Rob.[1]	Climber (H.)	SSF	DAA 1666
Eclipta prostrata (L.) L.	Herb	SSF	DC 89
Emilia sonchifolia (L.) DC. *ex* Wight	Herb	SSF	DC 224
Melampodium divaricatum (Rich. *ex* Pers.) DC.[5]	Shrub	SSF	DC 114
Rolandra fruticosa (L.) Kuntze[1]	Subshrub	SSF	DC 525
Sphagneticola trilobata (L.) Pruski	Herb	SSF	DC 82
Tridax procumbens L.	Herb	SSF	DC 87
Indet.	Herb	MAN	DC 153
Indet.	Herb	SSF	DC 249
Indet.	Herb	RES	DC 378
Bignoniaceae			
Adenocalymma comosum (Cham.) DC.[12]	Climber (W.)	SSF	DC 226
Anemopaegma parkeri Sprage[5]	Climber (W.)	SSF	DC 468
Bignonia corymbosa (Vent.) L.G.Lohmann	Climber (W.)	SSF	DC 441
Fridericia conjugata (Vell.) L.G.Lohmann	Climber (W.)	RES	DC 107
Lundia cordata (Vell.) A.DC.	Climber (W.)	SSF	DC 232
Blechnaceae			
Blechnum serrulatum Rich.	Herb	ACO	DC 366
Boraginaceae			
Cordia superba Cham.[1]	Treelet	SSF	DC 130
Tournefortia candidula (Miers) Johnst.	Climber (W.)	SSF	DC 133
Varronia multispicata (Cham.) Borhidi	Subshrub	SSF	DC 560
Bromeliaceae			
Cryptanthus alagoanus Leme & J.A.Siqueira[123]	Herb	SSF	DC 536*

Continued

Table 1. *Continued.*

Family/species	Habit	Vegetation type	Voucher
Burmanniaceae			
Burmannia capitata (Walter *ex* J.F.Gmel.) Mart.	Herb	SSF	DC 566
Burseraceae			
Protium heptaphyllum (Aubl.) Marchand	Tree	SSF	DC 314
Protium sp.	Tree	SSF	DC 466
Cannabaceae			
Trema micrantha (L.) Blume	Shrub	SSF	DC 446
Capparaceae			
Cynophalla flexuosa (L.) J.Presl	Tree	RES	DC 331
Celastraceae			
Maytenus distichophylla Mart. *ex* Reissek[12]	Treelet	SSF	DC 445
Prionostemma aspera (Lam.) Miers	Climber (W.)	SSF	DC 104
Chrysobalanaceae			
Hirtella racemosa Lam.	Shrub	SSF	DC 113
Licania tomentosa (Benth.) Fritsch[123]	Tree	SSF	DC 339
Licania sp.	Tree	RES	DC 309
Combretaceae			
Buchenavia tetraphylla (Aubl.) R.A.Howard	Tree	SSF	DC 260
Combretum sp.	Climber (W.)	SSF	DC 608
Conocarpus erectus L.	Tree	MAN	DC 540
Laguncularia racemosa (L.) C.F.Gaertn.	Treelet	MAN	DC 157
Terminalia catappa L.[8]	Tree	RES	DC 323
Commelinaceae			
Commelina sp.	Herb	SSF	DC 454
Connaraceae			
Connarus sp.	Climber (W.)	SSF	DC 640
Convolvulaceae			
Bonamia maripoides Hallier f.	Climber (H.)	SSF	DC 464
Ipomoea alba L.	Climber (H.)	RES	DC 521
Ipomoea asarifolia (Desr.) Roem. & Schult.	Subshrub	SSF	DC 250
Ipomoea bahiensis Willd. *ex* Roem. & Schult.[1]	Climber (H.)	SSF	DC 572
Jacquemontia glaucescens Choisy[12]	Climber (H.)	SSF	DC 220
Merremia macrocalyx (Ruiz & Pav.) O'Donell	Climber (H.)	SSF	DC 610
Operculina hamiltonii (G.Don) D.F.Austin & Staples	Climber (H.)	MAN	DC 453
Cyperaceae			
Bolboschoenus robustus (Pursh) Soják[2]	Herb	SSF	AM 728
Cyperus haspan L.	Herb	SSF	DAA 1690
Cyperus ligularis L.	Herb	SSF	BSA 579
Cyperus luzulae (L.) Retz.	Herb	SSF	BSA 536
Cyperus sphacelatus Rottb.	Herb	SSF	BSA 537
Cyperus surinamensis Rottb.	Herb	SSF	BSA 583
Eleocharis acutangula (Roxb.) Schult.	Herb	MAN	DC 559
Eleocharis geniculata (L.) Roem. & Schult.	Herb	SSF	DC 177
Eleocharis maculosa (Vahl) Roem. & Schult.[1]	Herb	MAN	DC 555
Fimbristylis cymosa R.Br.	Herb	SSF	DC 557
Fimbristylis miliacea (L.) Vahl	Herb	SSF	BSA 539
Fuirena umbellata Rottb.	Herb	SSF	DC 727
Pycreus polystachyos (Rottb.) P.Beauv.	Herb	SSF	DAA 1695
Remirea maritima Aubl.[2]	Herb	RES	DC 520
Rhynchospora cephalotes (L.) Vahl	Herb	RES, SSF	DC 325
Rhynchospora ciliata (Vahl) Kük.	Herb	SSF	BSA 535
Rhynchospora comata (Link) Roem. & Schult.	Herb	SSF	AM 474
Rhynchospora emaciata (Nees) Boeckeler[5]	Herb	SSF	BSA 581
Rhynchospora holoschoenoides (Rich.) Herter	Herb	SSF	BSA 587a
Scleria bracteata Cav.	Herb	SSF	BSA 589
Scleria hirtella Sw.	Herb	SSF	DAA 1692
Scleria mitis P.J.Bergius	Herb	RES	DC 320
Scleria secans (L.) Urb.	Herb	SSF	DC 533

Continued

Table 1. *Continued.*

Family/species	Habit	Vegetation type	Voucher
Dilleniaceae			
Curatella americana L.	Tree	SSF	DC 367
Davilla nitida (Vahl) Kubitzki	Climber (W.)	SSF	DC 168
Tetracera breyniana Schltdl.[12]	Climber (W.)	SSF	DC 132
Tetracera sp.	Climber (W.)	SSF	DC 166
Dioscoreaceae			
Dioscorea marginata Griseb.	Herb	SSF	DC 612*
Elaeocarpaceae			
Sloanea sp.	Tree	SSF	DC 498
Erythroxylaceae			
Erythroxylum affine A.St.-Hil.[12]	Treelet	SSF	DC 509
Erythroxylum citrifolium A.St.-Hil.	Treelet	SSF	DC 505
Erythroxylum passerinum Mart.[12]	Tree	SSF	DC 332
Euphorbiaceae			
Astraea lobata (L.) Klotzsch	Herb	SSF	DC 119
Cnidoscolus urens (L.) Arthur	Subshrub	RES	DC 318
Dalechampia coriacea Klotzsch *ex* Müll. Arg.[135]	Climber (W.)	SSF	DC 473
Dalechampia scandens L.	Climber (W.)	SSF	DC 350
Euphorbia hirta L.	Herb	SSF	DC 395
Euphorbia hyssopifolia L.	Subshrub	SSF	BSA 548
Euphorbia prostrata Aiton	Herb	SSF	BSA 549
Microstachys corniculata (Vahl) Griseb.	Herb	SSF	BSA 531
Sapium glandulosum (L.) Morong	Treelet	SSF	DC 545
Fabaceae			
Abarema cochliacarpos (Gomes) Barneby & J.W.Grimes[1]	Tree	SSF	DC 514
Andira fraxinifolia Benth.[1]	Tree	SSF	DC 374
Apuleia leiocarpa (Vogel) J.F. Macbr.[7]	Tree	SSF	DC 375
Bowdichia virgilioides Kunth	Tree	SSF	DC 369
Centrosema arenarium Benth.[1]	Subshrub	SSF	DC 154
Centrosema virgininum (L.) Benth.	Climber (H.)	SSF	EDM 12
Chamaecrista desvauxii (Collad.) Killip	Subshrub	SSF	DC 602
Chamaecrista eitenorum (H.S.Irwin & Barneby) H.S.Irwin & Barneby[5]	Tree	SSF	DAA 1660
Chamaecrista flexuosa (L.) Greene	Subshrub	SSF	DC 600
Chamaecrista nictitans (L.) Moench	Shrub	SSF	DC 110
Crotalaria retusa L.[5]	Subshrub	SSF	DC 120
Dalbergia ecastaphyllum (L.) Taub.	Shrub	RES	DC 354
Desmodium barbatum (L.) Benth.	Subshrub	SSF	DC 135
Dioclea violacea Mart. *ex* Benth.	Climber (W.)	SSF	EDM 05
Dioclea virgata (Rich.) Amshoff	Climber (W.)	SSF	DC 384
Hymenaea courbaril L.	Shrub	SSF	DC 225
Indigofera blanchetiana Benth.[15]	Subshrub	SSF	DC 449
Indigofera microcarpa Desv.[1]	Subshrub	MAN	DC 558
Indigofera suffruticosa Mill.	Shrub	RES	DC 330
Inga ingoides (Rich.) Willd.	Treelet	SSF	DC 581
Inga laurina (Sw.) Willd.	Treelet	SSF	DC 149
Inga striata Benth.	Tree	SSF	DC 586
Macroptilium lathyroides (L.) Urb.	Subshrub	MAN	DC 553
Mimosa pseudosepiaria Harms[13]	Shrub	SSF	AM 715
Mimosa sensitiva L.	Climber (W.)	SSF	DC 635
Mimosa somnians Humb. & Bonpl. *ex* Willd.	Shrub	SSF	DC 152
Muellera obtusa (Benth.) M.J. Silva & A.M.G.Azevedo[15]	Tree	RES	DC 363
Pterocarpus rohrii Vahl	Tree	SSF	DC 463
Senna macranthera (DC. *ex* Collad.) H.S.Irwin & Barneby	Climber (W.)	RES, SSF	DC 118
Sophora tomentosa L.	Treelet	MAN	DC 539
Stylosanthes viscosa (L.) Sw.	Shrub	SSF	DC 99
Swartzia pickelii Killip *ex* Ducke[1347]	Tree	SSF	DAA 1667
Swartzia sp.	Tree	SSF	DC 522
Tephrosia purpurea (L.) Pers.	Subshrub	SSF	DC 465
Vigna luteola (Jacq.) Benth.[5]	Climber (H.)	SSF	DC 570
Vigna peduncularis (Kunth) Fawc. & Rendle	Climber (H.)	SSF	DC 492
Zornia brasiliensis Vogel	Subshrub	SSF	DC 576

Continued

Table 1. *Continued.*

Family/species	Habit	Vegetation type	Voucher
Gentianaceae			
Schultesia guianensis (Aubl.) Malme	Subshrub	SSF	DC 174
Heliconiaceae			
Heliconia psittacorum L.f.	Herb	SSF	DC 85
Hernandiaceae			
Sparattanthelium tupiniquinorum Mart.	Shrub	SSF	DC 223
Humiriaceae			
Sacoglottis mattogrossensis Malme	Tree	SSF	DC 254
Hypericaceae			
Vismia guianensis (Aubl.) Choisy	Shrub	SSF	DC 98
Iridaceae			
Cipura paludosa Aubl.	Herb	SSF	DC 248
Lamiaceae			
Mesosphaerum suaveolens (L.) Kuntze	Subshrub	SSF	DC 256
Rhaphiodon echinus Schauer[1]	Subshrub	RES	DC 548
Vitex rufescenscens A.Juss.	Tree	SSF	DC 595
Lauraceae			
Cassytha filiformis L.	Herb	SSF	DC 167
Ocotea canaliculata (Rich.) Mez	Tree	SSF	DC 501
Ocotea fasciculata (Nees) Mez	Tree	SSF	DC 306
Ocotea cf. *indecora* (Schott) Mez[125]	Tree	SSF	DC 357
Ocotea puberula (Rich.) Nees[5]	Tree	SSF	DC 529
Lecythidaceae			
Eschweilera ovata (Cambess.) Mart. *ex* Miers[1]	Tree	SSF	DC 92
Lecythis pisonis Cambess.[1]	Tree	SSF	DC 131
Lentibulariaceae			
Utricularia cf. *pusilla* Vahl	Herb	SSF	DC 247
Loganiaceae			
Spigelia anthelmia L.	Herb	SSF	DC 78
Strychnos parvifolia A.DC.[1]	Climber (W.)	SSF	DC 579
Loranthaceae			
Psittacanthus dichroos (Mart.) Mart.[1]	Herb	SSF	DC 628
Struthanthus sp.	Herb	SSF	DC 621
Lygodiaceae			
Lygodium venustum Sw.	Herb	RES	DC 319
Lythraceae			
Cuphea sp.	Subshrub	SSF	DC 146
Cuphea sp.	Subshrub	SSF	DAA 1687
Malpighiaceae			
Byrsonima sericea DC.	Tree	SSF	DC 310
Hiraea sp.	Climber (W.)	SSF	DC 462
Stigmaphyllon blanchetii C.E.Anderson[1]	Climber (W.)	SSF	DC 100
Malvaceae			
Eriotheca macrophylla (K.Schum.) A.Robyns[12]	Tree	SSF	PR
Guazuma ulmifolia Lam.	Tree	SSF	DC 333
Luehea paniculata Mart. & Zucc.	Tree	SSF	BSA 547
Pavonia cancellata (L.) Cav.	Subshrub	SSF	BSA 586
Sida cerradoensis Krapov.[15]	Subshrub	SSF	BSA 585
Sida ciliaris L.	Subshrub	SSF	DC 623
Sida linifolia Cav.	Subshrub	SSF	BSA 578
Sida glomerata Cav.	Subshrub	SSF	EDM 06
Sida urens L.	Subshrub	SSF	DC 573
Sida sp.	Herb	SSF	EDM 02
Thespesia populnea (L.) Sol. *ex* Corrêa[8]	Tree	MAN	DC 538
Waltheria indica L.	Subshrub	SSF	BSA 551
Melastomataceae			
Clidemia bisserata DC.	Shrub	SSF	AM 726
Clidemia hirta (L.) D.Don	Subshrub	SSF	DC 582
Miconia albicans (Sw.) Triana	Shrub	SSF	DC 79
Miconia ciliata (Rich.) DC.	Shrub	SSF	DC 238
Nepsera aquatica (Aubl.) Naudin	Subshrub	SSF	DAA 1691
Pterolepis glomerata (Rottb.) Miq.[1]	Subshrub	SSF	DC 95

Continued

Table 1. *Continued.*

Family/species	Habit	Vegetation type	Voucher
Menispermaceae			
Cissampelos sp.	Climber (W.)	SSF	DC 563
Myrtaceae			
Calyptranthes dardanoi Mattos[123]	Shrub	SSF	DC 589*
Campomanesia dichotoma (O.Berg) Mattos[12]	Shrub	SSF	DC 632
Eugenia astringens Cambess.[125]	Shrub	SSF	DC 574
Eugenia hirta O. Berg[12]	Shrub	SSF	DC 321
Eugenia punicifolia (Kunth) DC.[1]	Shrub	SSF	DC 342
Eugenia uniflora L.[5]	Shrub	SSF	DC 338
Myrcia racemosa (O. Berg) Kiaersk.[1]	Shrub	SSF	AM 732*
Myrcia sylvatica (G. Mey.) DC.	Shrub	SSF	DC 352
Myrcia tomentosa (Aubl.) DC.	Shrub	SSF	DC 625
Myrciaria ferruginea O.Berg[12]	Shrub	SSF	BSA 456
Psidium guineense Sw.	Shrub	SSF	DC 456
Psidium oligospermum Mart. ex DC.[1]	Shrub	SSF	DC 458*
Nyctaginaceae			
Boerhavia sp.	Herb	SSF	DC 450
Guapira cf. *nitida* (Mart. *ex* J.A.Schmidt) Lundell[125]	Treelet	SSF	DC 116
Guapira cf. *opposita* (Vell.) Reitz	Treelet	SSF	DC 334
Guapira sp.	Shrub	MAN, RES, SSF	DC 537
Ochnaceae			
Ouratea castaneifolia (DC.) Engl.[5]	Treelet	RES, SSF	DC 328
Ouratea hexasperma (A.St.-Hil.) Baill.	Shrub	SSF	DC 469
Sauvagesia erecta L.	Subshrub	SSF	DC 245
Olacaceae			
Heisteria sp.	Tree	SSF	DC 619
Ximenia americana L.	Shrub	SSF	DC 637
Onagraceae			
Ludwigia sp.	Subshrub	SSF	DC 569
Ludwigia sp.	Subshrub	SSF	DC 571
Orchidaceae			
Habenaria trifida Kunth	Herb	SSF	EM 04
Oeceoclades maculata (Lindl.) Lindl.	Herb	SSF	DC 261
Polystachya concreta (Jacq.) Garay & Sweet	Herb	SSF	DC 382
Vanilla bahiana Hoehne[1]	Herb	SSF	DC 394
Passifloraceae			
Passiflora cincinnata Mast.	Climber (H.)	SSF	DC 475
Passiflora foetida L.	Climber (H.)	MA	DC 542
Passiflora misera Kunth	Climber (H.)	RES	DC 440
Passiflora silvestris Vell.[1]	Climber (H.)	SSF	DC 489
Passiflora watsoniana Mast.[12]	Climber (H.)	RES, SSF	DC 381*
Piriqueta racemosa (Jacq.) Sweet	Subshrub	SSF	BA 532
Piriqueta sp.	Subshrub	SSF	BA 587b
Turnera subulata Sm.	Subshrub	SSF	DC 73
Peraceae			
Chaetocarpus myrsinites Baill.	Tree	SSF	DC 358
Pera glabrata (Schott.) Poepp. *ex* Baill.	Tree	SSF	DC 311
Pogonophora schomburgkiana Miers *ex* Benth.	Tree	SSF	DC 455
Phyllanthaceae			
Phyllanthus sp.	Herb	SSF	DC 551
Plantaginaceae			
Achetaria scutellarioides (Benth.) Wettst.	Herb	SSF	DC 83
Scoparia dulcis L.	Subshrub	SSF	DC 74
Indet.	Subshrub	SSF	DC 156
Poaceae			
Andropogon selloanus (Hack.) Hack.	Herb	SSF	DC 510
Aristida longifolia Trin.	Herb	SSF	AM 722
Bambusa vulgaris Schrad. *ex* J.C.Wendl.[8]	Herb	SSF	RF
Cenchrus echinatus L.[5]	Herb	SSF	DC 77
Chloris virgata Sw.	Herb	SSF	AM 723

Continued

Table 1. *Continued.*

Family/species	Habit	Vegetation type	Voucher
Poaceae, *continued*			
Dactyloctenium aegyptium (L.) Willd.	Herb	SSF	DC 506
Echinolaena inflexa (Poir.) Chase	Herb	SSF	DC 402
Eragrostis prolifera (Sw.) Steud.	Herb	RES	DC 550
Eustachys cf. *bahiensis* (Steud.) Herter	Herb	SSF	BSA 584
Ichnanthus calvescens (Nees ex Trin.) Döll	Herb	SSF	AM 720
Ichnanthus nemoralis (Schrad. *ex* Schult.) Hitchc. & Chase	Herb	SSF	AM 721
Lasiacis sorghoidea (Desv. *ex* Ham.) Hitchc. & Chase	Herb	RES	DC 326
Ocellochloa sp.	Herb	SSF	BSA 542
Olyra sp.	Herb	SSF	DC 616
Panicum aquaticum Poir.	Herb	SSF	DC 401
Panicum condensatum Bertol.[15]	Herb	SSF	DC 400
Panicum sp.	Herb	SSF	BSA 582
Pappophorum pappiferum (Lam.) Kuntze	Herb	SSF	BSA 543
Paspalum maritimum Trin.	Herb	SSF	BSA 541
Paspalum millegrana Schrad. *ex* Schult.	Herb	SSF	BSA 544
Paspalum plicatulum Michx.	Herb	SSF	DC 403
Paspalum sp.	Herb	RES	DC 312*
Setaria vulpiseta (Lam.) Roem. & Schult.	Herb	SSF	BSA 574
Streptostachys asperifolia Desv.	Herb	SSF	AM 718
Urochloa plantaginea (Link) R.D.Webster	Herb	MAN	BSA 576
Polygalaceae			
Asemeia martiana (A.W.Benn.) J.F.B.Pastore & J.R.Abbott[1]	Subshrub	SSF	DC 257
Asemeia violacea (Aubl.) J.F.B.Pastore & J.R.Abbott	Subshrub	SSF	DC 253
Bredemeyera laurifolia (A.St.-Hil. & Moq.) Klotzsch ex A.W.Benn.[1]	Shrub	SSF	BSA 984
Securidaca diversifolia (L.) S.F.Blake	Climber (W.)	SSF	DC 626
Polygonaceae			
Coccoloba lucidula Benth.	Climber (W.)	SSF	DC 336
Coccoloba parimensis Benth.	Climber (W.)	SSF	DC 483
Coccoloba sp.	Treelet	SSF	DC 393
Portulacaceae			
Portulaca cf. *oleracea* L.	Herb	SSF	DC 605
Proteaceae			
Roupala montana Aubl.	Treelet	SSF	DC 351
Putranjivaceae			
Drypetes cf. *sessiliflora* Allemão[125]	Tree	SSF	DC 377
Rhizophoraceae			
Rhizophora mangle L.	Treelet	MAN	DC 337
Rubiaceae			
Alseis pickelii Pilg. & Schmale[13]	Tree	SSF	DC 348
Borreria verticillata (L.) G.Mey.	Subshrub	SSF	DC 79
Cordiera myrciifolia (K.Schum.) C.H.Perss. & Delprete	Shrub	SSF	DC 129
Diodella apiculata (Willd. *ex* Roem. & Schult.) Delprete	Subshrub	SSF	DC 231
Genipa americana L.	Tree	SSF	DC 397
Guettarda platypoda DC.	Shrub	SSF	DC 228
Guettarda viburnoides Cham. & Schltdl.	Shrub	SSF	DC 479
Margaritopsis chaenotricha (DC.) C.M.Taylor [2]	Subshrub	SSF	DC 535
Palicourea crocea (Sw.) Roem. & Schult.[5]	Shrub	SSF	DC 491
Posoqueria longiflora Aubl.	Treelet	SSF	DC 472
Psychotria capitata Ruiz & Pav.	Shrub	SSF	DC 499
Sabicea grisea Cham. & Schltdl.	Climber (W.)	SSF	DC 237
Salzmannia nitida DC.[123]	Treelet	SSF	DC 235
Tocoyena formosa (Cham. & Schltdl.) K.Schum.	Tree	SSF	DAA 1661
Tocoyena sellowiana (Cham. & Schltdl.) K.Schum.[1]	Tree	SSF	DC 513
Rutaceae			
Ertela trifolia (L.) Kuntze	Subshrub	SSF	DC 583
Salicaceae			
Casearia arborea (Rich.) Urb.	Treelet	SSF	DC 122

Continued

Table 1. *Continued.*

Family/species	Habit	Vegetation type	Voucher
Sapindaceae			
Cupania impressinervia Acev.-Rodr.[123]	Treelet	SSF	DC 638*
Cupania racemosa (Vell.) Radlk.[1]	Tree	SSF	DC 596
Matayba guianensis Aubl.	Tree	SSF	DC 244
Serjania paucidentata DC.	Climber (W.)	SSF	DC 93
Serjania salzmanniana Schltdl.[1]	Climber (W.)	SSF	DC 316
Sapotaceae			
Manilkara salzmannii (A.DC.) H.J. Lam[1]	Treelet	SSF	DC 515*
Manilkara zapota (L.) P.Royen	Tree	SSF	DC 399
Pouteria durlandii (Standl.) Baehni	Treelet	RES	DC 315*
Pouteria venosa (Mart.) Baehni ssp. *amazonica* T.D.Penn.	Tree	SSF	DC 478
Pouteria sp.	Tree	SSF	DC 477
Schoepfiaceae			
Schoepfia brasiliensis A.DC.	Shrub	SSF	DC 585
Simaroubaceae			
Simaba ferruginea A.St.-Hil.[1]	Tree	SSF	DC 324
Solanaceae			
Schwenckia americana Rooyen *ex* L.	Subshrub	SSF	DC 162
Solanum asperum Rich.	Subshrub	SSF	DC 171
Solanum americanum Mill.	Subshrub	SSF	DC 236
Solanum paludosum Moric.	Shrub	SSF	DC 91
Indet.	Herb	SSF	DC 239
Trigoniaceae			
Trigonia nivea Cambess.	Climber (W.)	SSF	DC 233
Typhaceae			
Typha domingensis Pers.	Herb	ACO	DC 599
Urticaceae			
Cecropia pachystachya Trécul	Treelet	SSF	DC 124
Verbenaceae			
Lantana camara L.	Shrub	SSF	DC 86
Lantana sp.	Shrub	SSF	DC 349
Stachytarpheta sp.	Herb	SSF	DC 84
Stachytarpheta sp.	Subshrub	SSF	DC 524
Violaceae			
Pombalia calceolaria (L.) Paula-Souza	Herb	SSF	BSA 550
Vitaceae			
Cissus blanchetiana Planch.[1]	Climber (W.)	SSF	DC 482*
Cissus erosa Rich.[1]	Climber (W.)	SSF	DC 142
Cissus verticillata (L.) Nicolson & C.E.Jarvis	Climber (W.)	RES	DC 313
Xyridaceae			
Xyris jupicai Rich.	Herb	SSF	DC 90
Undetermined			
Indet.	Subshrub	SSF	DC 601
Indet.	Tree	SSF	DC 361

[1] Endemic to Brazil
[2] Endemic to the Atlantic Forest
[3] Endemic to the Brazilian Northeast
[4] Endemic to the Pernambuco Endemism Center
[5] New record of occurrence for the state of Pernambuco
[6] Rare species
[7] Threatened species
[8] Exotic species